

Cohort Effects or Period Effects? Fertility Decline in South Korea in the Twentieth Century

Bongoh Kye

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Abstract This study examines if the Korean fertility decline is driven by long-term cohort changes or by fluctuating period changes. By using a classic age–period–cohort model, a moment decomposition method, and a new summary fertility measure—‘cross-sectional average fertility’—I show that the Korean fertility decline is primarily driven by period changes and that delayed childbearing has important consequences for the onset of fertility decline. These findings are in line with the existing literature in fertility changes such as theories of fertility transitions and sociological accounts of fertility changes in Western countries in the twentieth century. The policy implications of these findings are also discussed.

Keywords Fertility decline in South Korea · Cross-sectional average fertility (CAF) · APC analysis · Moment decomposition

Cohort, Period, and Fertility Transition

South Korea evolved from a high fertility country to a ‘lowest-low fertility’ country, defined as period total fertility below 1.2 (Kohler et al. 2002), in less than a half century. The period total fertility in South Korea was around 6.0 until the 1960s, but has rapidly declined since then. The period total fertility dropped below the replacement level (2.1) in 1983, and has continued declining ever since. According to *World Health Statistics 2010* (World Health Organization 2010), the period total fertility in South Korea was 1.2 in 2008, which is the lowest among the countries examined. This study examines this rapid fertility decline in South Korea by using a classic age–period–cohort (APC) analysis, a moment decomposition method, and a new summary fertility measure, ‘cross-sectional average fertility’ (CAF).

B. Kye (✉)
Cornell Population Center, Cornell University, 293 MVR Hall, Ithaca, NY 14853, USA
e-mail: bk353@cornell.edu

Table 3 Annual age-specific fertility rates, 1980–2007 (per 1,000)

Age	Year													
	80	81	82	83	84	85	86	87	88	89	90	91	92	93
15	0.8	1.3	1.6	1.2	0.8	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16	3.5	4.4	4.4	3.7	2.9	2.4	1.4	1.1	0.8	0.8	0.8	0.8	0.9	0.9
17	6.1	7.8	10.9	9.3	7.6	6.3	5.3	3.4	2.6	2.2	2.4	2.2	2.4	2.4
18	15.4	15.5	18.5	19.6	16.6	14.3	12.8	10.3	7.1	5.5	5.0	5.4	5.9	5.5
19	36.3	33.4	37.5	30.6	31.3	28.1	25.3	20.7	17.9	13.1	11.6	11.4	12.4	12.4
20	66.4	69.8	67.3	55.3	44.1	48.4	43.3	37.4	34.1	29.3	23.6	23.5	22.6	22.5
21	102.0	106.4	122.8	92.3	75.3	64.6	69.6	61.5	56.4	51.2	47.0	42.6	41.8	36.3
22	135.7	147.4	169.1	159.5	118.7	105.4	89.6	95.4	88.0	82.8	78.3	79.9	70.3	62.4
23	186.6	186.5	201.7	202.3	187.3	152.8	136.4	119.6	130.6	122.1	115.1	121.6	118.1	99.0
24	221.6	238.2	233.1	216.6	211.9	211.1	174.4	166.3	150.3	166.8	155.6	161.9	163.9	155.0
25	273.6	251.2	250.0	228.4	201.5	216.4	214.8	189.5	188.0	176.6	187.9	198.6	198.6	196.4
26	276.4	284.9	241.1	217.9	187.8	188.0	198.6	204.9	194.9	197.5	186.2	217.6	215.3	208.7
27	246.8	244.8	228.9	186.4	160.2	157.7	155.5	172.3	186.0	178.7	189.3	192.5	208.3	202.8
28	244.5	206.5	171.1	164.5	126.6	123.7	124.8	126.7	143.9	156.2	152.3	179.5	168.4	176.5
29	183.8	195.2	145.0	111.1	101.3	90.4	91.6	92.8	99.6	113.2	124.5	135.3	146.9	135.0
30	172.9	129.6	113.8	88.5	65.7	68.9	64.6	66.9	72.9	76.1	88.6	104.3	108.5	113.6
31	132.9	118.1	81.7	66.1	50.0	42.7	50.1	45.6	50.8	55.3	59.1	72.3	83.7	80.3
32	106.4	84.1	69.7	47.4	37.6	33.5	31.1	34.6	34.8	39.2	43.7	48.4	58.6	63.4
33	94.8	66.5	49.4	38.7	26.5	24.6	24.2	21.8	26.0	26.5	30.6	35.0	40.0	44.7
34	71.6	55.8	39.3	28.1	21.3	21.6	17.4	17.1	17.2	19.9	21.4	24.9	29.1	30.5
35	57.9	37.8	31.5	22.4	15.2	13.8	15.1	12.4	12.9	13.4	16.8	17.4	21.3	22.5
36	48.2	31.1	21.2	17.9	12.7	10.4	10.0	9.9	9.6	11.0	10.4	13.7	14.7	16.9
37	38.1	24.6	18.4	11.5	9.9	7.9	7.0	7.3	7.3	7.4	8.0	8.8	11.5	11.7

Table 3 continued

Age	Year													
	80	81	82	83	84	85	86	87	88	89	90	91	92	93
38	35.7	18.9	14.4	10.5	6.6	6.6	5.8	4.8	5.1	5.2	5.8	6.3	7.1	8.7
39	28.1	16.3	12.0	7.9	5.8	4.2	4.4	3.6	3.5	3.7	3.8	4.3	5.0	5.4
40	22.6	11.6	8.8	6.9	4.4	3.7	2.8	2.9	2.5	2.5	2.8	2.5	3.5	3.9
41	17.8	9.2	6.3	5.0	3.6	2.6	2.5	1.9	1.9	2.0	1.9	2.1	2.2	2.5
42	14.9	6.3	4.8	3.5	2.7	2.1	2.0	1.4	1.3	1.2	1.3	1.4	1.6	1.4
43	11.7	4.6	3.5	2.5	1.9	1.6	1.3	1.1	1.0	0.7	1.0	0.8	0.9	1.0
44	9.9	3.2	2.5	1.8	1.2	1.1	1.1	0.8	0.7	0.6	0.6	0.6	0.6	0.6
45	7.7	2.3	1.9	1.1	0.9	0.8	0.7	0.5	0.5	0.4	0.4	0.3	0.4	0.4
46	6.4	2.1	1.5	1.0	0.7	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.3
47	5.4	1.5	1.1	0.9	0.5	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1
48	4.5	1.1	0.9	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.1
49	4.1	0.9	0.7	0.5	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1

Age	Year													
	94	95	96	97	98	99	00	01	02	03	04	05	06	07
15	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.2	0.0
16	0.9	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.9	0.6	0.5	0.4	0.3
17	2.3	2.2	2.0	1.9	1.7	1.5	1.6	1.2	1.3	1.8	1.4	1.2	1.3	1.0
18	5.2	4.7	4.9	4.2	4.0	3.1	3.0	2.6	3.4	3.2	3.1	2.8	2.9	2.6
19	10.9	10.8	9.9	9.3	8.0	7.4	6.2	5.7	6.6	5.4	5.6	5.5	6.1	7.9
20	21.8	19.7	18.2	16.9	14.9	13.6	12.0	9.3	8.7	8.0	6.6	6.5	7.5	9.6
21	34.9	34.9	31.1	29.0	25.0	23.2	18.8	16.0	13.5	12.1	11.3	9.7	10.3	12.9
22	56.1	55.3	52.6	46.4	41.0	36.6	32.5	25.3	22.1	18.4	16.9	14.9	14.6	16.4

Table 3 continued

Age	Year													
	94	95	96	97	98	99	00	01	02	03	04	05	06	07
23	90.5	81.8	79.6	74.3	63.1	58.9	51.3	41.3	32.3	29.9	25.9	23.0	21.5	22.7
24	131.1	122.9	110.2	104.9	94.9	88.0	88.1	73.1	61.5	52.4	41.0	33.2	32.0	33.6
25	187.4	165.9	151.4	136.1	129.6	121.5	111.5	93.5	74.4	67.8	58.4	52.0	45.7	49.1
26	214.8	211.8	184.9	176.6	156.5	153.0	148.9	122.2	101.2	96.0	87.4	72.1	72.0	71.6
27	205.5	213.0	208.3	188.3	179.4	168.4	172.9	150.0	127.3	125.5	116.4	101.9	95.9	106.5
28	182.9	184.8	189.8	188.4	172.9	172.9	172.7	156.4	138.3	142.2	132.2	123.1	121.4	127.3
29	150.2	152.2	150.2	159.2	157.2	147.2	165.3	142.8	130.5	140.4	137.5	125.4	131.3	141.4
30	111.6	118.3	119.2	119.9	127.5	125.3	136.7	126.6	116.9	123.3	129.1	120.5	129.2	140.5
31	91.9	86.4	93.0	92.5	93.5	96.0	111.9	100.2	99.9	103.1	108.6	107.4	116.4	128.8
32	65.4	69.6	65.8	70.6	69.6	70.3	85.1	79.9	76.1	84.2	86.7	86.9	99.0	112.1
33	49.4	48.5	49.9	50.3	52.4	51.8	60.4	59.0	57.8	60.5	67.5	66.9	74.2	90.5
34	35.3	37.4	35.6	38.7	36.8	38.9	44.1	41.4	41.5	44.8	47.9	50.6	56.0	66.8
35	24.5	26.5	27.9	27.5	27.8	27.1	31.7	30.7	29.8	31.6	34.7	35.3	41.4	49.0
36	18.1	18.3	19.6	21.5	20.1	20.6	22.2	22.2	21.9	22.1	24.6	25.0	28.2	36.1
37	13.1	13.3	13.2	15.1	15.5	14.4	16.8	15.4	15.2	16.3	16.6	17.7	19.9	23.9
38	8.7	9.3	9.8	10.1	10.6	10.7	11.3	11.4	10.4	11.3	12.0	11.4	13.5	16.4
39	6.5	6.5	6.9	7.3	6.7	6.8	8.1	7.7	7.5	7.6	8.2	8.1	8.6	10.4
40	4.2	4.5	4.5	5.0	4.8	4.5	5.3	5.2	4.9	5.3	5.2	5.3	5.9	6.7
41	2.6	2.9	3.1	3.0	3.1	3.1	3.1	3.3	3.3	3.1	3.4	3.4	3.5	4.5
42	1.7	1.6	1.8	2.0	1.9	2.0	2.1	1.8	2.0	2.2	2.2	2.2	2.1	2.5
43	0.9	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.3
44	0.6	0.5	0.7	0.7	0.8	0.6	0.7	0.6	0.7	0.7	0.8	0.8	0.6	0.8
45	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Table 3 continued

Age	Year													
	94	95	96	97	98	99	00	01	02	03	04	05	06	07
46	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2
47	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1
48	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
49	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1

Source Korean Statistical Office (www.kosis.kr)